Tree/Shrub Pruning (Acre) 660

DEFINITION

Removing all or parts of selected branches or leaders from trees and shrubs.

PURPOSES

- Improve the appearance of trees or shrubs, e.g., ornamental plants and Christmas trees.
- Improve the quality of wood products.
- Improve the production of plant products, e.g., nuts, fruits, boughs, and tips.
- Reduce fire and/or safety hazards.
- Improve the growth and vigor of understory plants.
- Adjust the foliage and branching density for other specific intents such as wind and snow control, noise abatement, access control, and visual screens.
- Improve trail access/visitor safety.

CONDITIONS WHERE PRACTICE APPLIES

On crop trees of high value species (e.g., trees grown for select lumber, veneer, or Christmas trees); on trees/shrubs where removing all or parts of branches enhances the beauty, fruit, or nut production, and/or safety of an area; and to remove hazardous or diseased portions of trees.

CRITERIA

General Criteria Applicable To All Purposes

The pruning and shearing method and timing will match the limitations of the site and soils, achieve purposes for the specific tree or shrub species, and be conducted in a safe and efficient manner. See Michigan Natural Resources Conservation Sheet (NRCS) Conservation Sheet Tree/Shrub Pruning (660) for specifications.

Pruning or shearing will not adversely reduce the growth and vigor of the tree or shrub for the intended purpose.

Debris and vegetative material left on the site after treatment will not present an unacceptable fire or pest hazard or interfere with the intended purpose and other management activities.

Comply with applicable federal, state, and local laws and regulations during the installation, operation, and maintenance of this practice.

Timing of shearing, branch removal, and corrective pruning will be described to accomplish the intended purpose.

Use any appropriate, properly sharpened pruning tools including by-pass shears, chainsaws, pole saws, pruning saws, and bow saws. Small branches and limbs (up to 1.5 inches) may be cut with a hand pruner or lopping shear. The by-pass style pruner is considered superior to the anvil style. The preferred tool for cutting small and medium sized limbs (1.5 inches to 4 inches diameter) is a hand or pole saw with a curved blade having approximately 6-8 backward-facing teeth per inch that cut on the "pull" stroke. Bow saws and chain saws are more appropriate for limbs larger than 4 inches in diameter.

Do not prune oak species between March 1 and October 1 to reduce chances of spreading oak wilt disease (*Ceratocystis fagacearum*).

Do not paint or treat pruning cuts. (An exception could occur on oaks or elms to protect against introduction of oak wilt or Dutch elm disease.)

Improper pruning such as: cutting into the branch collar, pruning flush to the trunk, or leaving a large stub may enhance tree decay, wood cracks, and tissue dieback, and cause the tree to become susceptible to disease and insect attack.

Improper pruning may reduce the value of the timber, and cause trees/shrubs to be less healthy by increasing the incidence of disease or insect infestation.

For fire protection in a conifer plantation, begin pruning at any height, but do not remove more than one-third of the live crown. Remove all the pruned branches from a 15-foot border strip.

Additional Criteria For Shearing Or Shaping Christmas Trees

Begin shearing when trees are 3-5 years old (approximately 3 feet in height) and continue until trees are marketed.

For consumer preference, shape trees so that the base is two-thirds as wide as the overall height (i.e., a 6-foot high tree should have a base that does not exceed 4 feet wide).

Shear spruce and fir after the season's growth is complete and throughout dormant season (usually between November 1 and April 1). Shear spruce and fir just above a bud. Shear when temperatures are above freezing.

Shear pines during the active growing season just before terminal growth is completed (usually between June 20 and July 20).

Maintain one terminal leader of 12 inches in length, trimming just above a bud. Trim lightly during year of harvest.

Refer to North Central Regional Extension Publication 310, Shearing Recommendations for Christmas Tree Producers for additional information.

Additional Criteria For Production Of Wood Products

Corrective Pruning of Hardwoods

Prune seedlings in the spring before the new terminal has grown more than 3 inches. Remove the multiple leaders and any damaged terminals.

If a quality seedling is not apparent after 3 growing seasons, cut the tree off 1 inch above the ground during the dormant season. After stump sprouts appear, select the best sprout to leave and remove all others.

Clear Stem Pruning for Sawlog Production

Prioritize pruning of stands based on site quality and species.

Begin pruning trees as young as possible (5 inches DBH or as soon as crop trees can be recognized) to maximize pruning effect.

Preferred pruning time is late winter before bud break.

Prune to develop a single straight stem. Prune to a minimum of 10 feet; prune up to 18 feet if the objective is to produce clear sawlogs.

Do not prune higher than 1/2 of the total tree height or remove more than one-third of the live crown in a single pruning. If necessary, prune at 3-year intervals to reach an 18-foot height.

Prioritize pruning based on species and local markets. In Michigan, the following species are favorable for pruning: sugar maple, white and green ash, northern red oak, white oak, basswood, black cherry, black walnut, yellow birch, yellow poplar, red pine, and white pine.

Prune only up to 150 crop trees per acre, selecting only vigorous, single-stem trees.

Limbs one inch in diameter or less will normally close within one or two years.

Limbs in excess of 2 inches in diameter may take up to 10 years to close.

Prune trees according to the following steps:

1. Locate the branch bark ridge (Figure 1).
2. Find **A** (outside edge of branch bark ridge).
3. Find **B** (swelling where branch meets branch collar). If **B** is difficult to determine, drop a line from **A**: the angle **XAC** is equal to the angle **XAB** (Figure 1).
4. Make first cut as an undercut several inches beyond branch collar.
5. Remove limb with second cut made slightly above first cut.
6. Make the final cut on line **AB**.
7. Do not cut behind the branch bark ridge.
8. Do not leave stubs.
9. Do not cut into the branch collar.

See **Figure 1** for general hardwood pruning guidelines and **Figure 2** for general conifer pruning guidelines.

CONSIDERATIONS

Pruning and shearing should be timed to minimize disturbance to breeding and nesting arboreal wildlife species.

Shearing equipment should be disinfected between pruning individual trees having contagious fungal or

other diseases by dipping tools in 1 part bleach to 9 parts water or 70 percent denatured alcohol to prevent the spread of pathogens.

Review the estimated cost and projected economic benefits of the project before starting a pruning or shearing project.

Organic matter from decomposition of tree limbs will improve soil condition.

To maintain plant growth and sustain vigor, pruning and shearing may be done in two or more timed intervals.

Pruning between October 1 and March 1 may reduce the likelihood of introducing disease into the tree wound. Note: Pruning of pine and hardwood trees in forest stands during growing season may increase the chance for attack by bark beetles (*Ips spp* and *Dendrodoctonus spp*) and root collar weevil (*Hylobius radicis*).

PLANS AND SPECIFICATIONS

Use Michigan NRCS Conservation Sheet Tree/Shrub Pruning (660), or other approved specification sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation for preparing specifications. Refer to the following selected list of publications for additional information and guidelines on pruning of trees and shrubs for various purposes: Shearing Recommendations for Christmas Tree Producers, North Central Regional Extension Bulletin No. 310; How to Prune Trees, USFS, Northeastern Area State and Private Forestry by Bedker, O'Brien and Mielke, C. Kesner and K. Lampkin, 1992; Renovating Old, Abandoned Apple Trees, Michigan State University, North Central Regional Extension Bulletin No. 429; Repairing Storm Damage to Trees, MSU-E Bulletin E-1364; and Pruning Young Fruit Trees, MSU-E Bulletin No. E-0850.

OPERATION AND MAINTENANCE

Periodically inspect plant condition and take additional actions as necessary; e.g., additional pruning, pest management, nutrient management, and forest stand improvement.

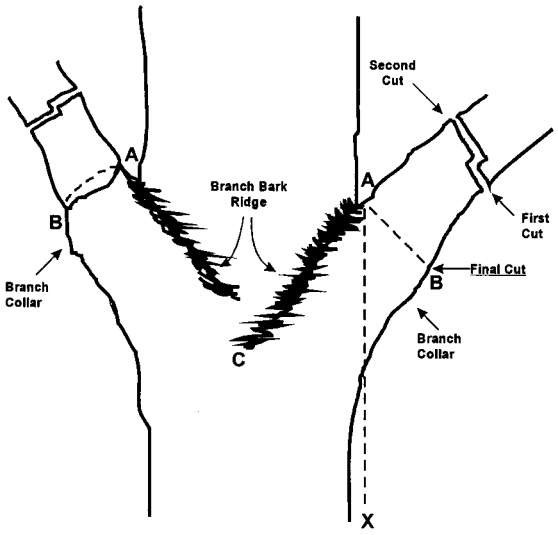

Figure 1 – Hardwood Pruning Guidelines

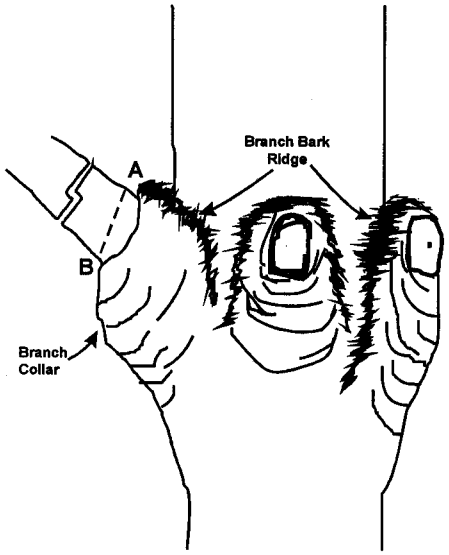

Figure 2 – Conifer Pruning Guidelines

REFERENCES

Dr. Alex Shigo, 1979, Forest Service Research Paper, NE-440-440.

Bedker, O'Brien and Mielke, 1995, How to Prune Trees, USFS, Northeastern Area State and Private Forestry Publication NA-FR-01.

M.R. Koelling and D.P. White, 1982 Growing Christmas Trees in Michigan, Michigan State University Extension Bulletin E-1172.

M.R. Koelling, 1991, Shearing Recommendations for Christmas Tree Producers, North Central Regional Extension Publication No. 310.

R.P. Kidd and M.R. Koelling, 1991, Improving Hardwood Timber Stands, Michigan State University Extension Bulletin E-1578.

J. Kielbaso and M. Koelling, 1975, Pruning Shade and Ornamental Trees, Michigan State University Extension Bulletin E-804.